

July 26, 2007

L-PI-07-055  
10 CFR 50.73

U S Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

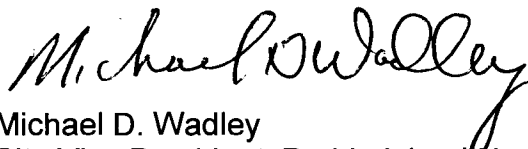
Prairie Island Nuclear Generating Plant Unit 2  
Docket 50-306  
License No. DPR-60

LER 2-07-01, Unit 2 Reactor Trip, Supplement 1

Supplement 1 to the Licensee Event Report (LER) for this occurrence is attached. Nuclear Management Company, LLC (NMC) notified the NRC of this event, as required by 10 CFR 50.72(b)(2)(iv)(A) and 10 CFR 50.72(b)(2)(iv)(B) on April 5, 2007. The original LER was submitted on June 4, 2007. This supplement incorporates the results of NMC's root cause evaluation of this event. Please contact us if you require additional information related to this event.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments. This letter completes the commitment made in the original LER to submit a supplement to this LER after the associated root cause evaluation has been completed.



Michael D. Wadley  
Site Vice President, Prairie Island Nuclear Generating Plant  
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, Prairie Island, USNRC  
Resident Inspector, Prairie Island, USNRC  
Commerce Department, State of Minnesota

**ENCLOSURE**

**LICENSEE EVENT REPORT 2-07-01, Supplement 1**

4 pages follow

<b>NRC FORM 366</b> <b>COMMISSION</b> (6-2004)				<b>U.S. NUCLEAR REGULATORY</b>				<b>APPROVED BY OMB NO. 3150-0104</b>				<b>EXPIRES 6-30-2007</b>											
<b>LICENSEE EVENT REPORT (LER)</b>  (See reverse for required number of digits/characters for each block)												Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0066), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.											
FACILITY NAME (1) Prairie Island Nuclear Generating Plant Unit 2								DOCKET NUMBER (2) 05000 306				PAGE (3) 1 of 4											
TITLE (4) Unit 2 Reactor Trip																							
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)														
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME				DOCKET NUMBER										
4	05	07	07	-- 01 --	1	7	26	07	FACILITY NAME				DOCKET NUMBER										
OPERATING MODE (9)		1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 3: (Check all that apply) (11)																			
POWER LEVEL (10)		100		20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)				50.73(a)(2)(ix)(A)											
				20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)				50.73(a)(2)(x)											
				20.2203(a)(1)		50.36(c)(1)(i)(A)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)				73.71(a)(4)											
				20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)				73.71(a)(5)											
				20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)				OTHER Specify in Abstract below or in NRC Form 366A											
				20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)															
				20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)															
				20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(vii)															
				20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)															
				20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)															
LICENSEE CONTACT FOR THIS LER (12)																							
NAME Marlys Davis								TELEPHONE NUMBER (Include Area Code) 651.388.1121															
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																							
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX														
E	JC	RLY	W120	Y																			
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH		DAY		YEAR							
YES (If yes, complete EXPECTED SUBMISSION DATE).					<input checked="" type="checkbox"/> NO																		
<b>ABSTRACT</b>  <p>On April 5, 2007, Prairie Island Nuclear Generating Plant (PINGP) Unit 2 was operating at 100% power. At approximately 0908 CDT, during surveillance testing of Unit 2 Train A safeguards logic at power, a spurious Train A Safety Injection (SI) actuation occurred resulting in Reactor Protection System (RPS) actuation. Train A SI was in "Test" at the time and should not have caused the RPS trip. At approximately 0913 the operating crew manually actuated Train B SI as required by emergency operating procedures. Reactor Coolant System (RCS) pressure momentarily decreased below the shutoff head of the high head Emergency Core Cooling System (ECCS) pumps during the transient, resulting in ECCS discharge to the RCS. At approximately 0920 safety injection was terminated per emergency operating procedures. All systems operated as expected and operator response and recovery actions were as expected.</p> <p>Initial investigation of the cause of the automatic reactor trip was determined to be a deficiency with the safety injection relay equipment. Instrument and Control technicians discovered a safety injection relay with high contact resistance. The high resistance contact caused the relay to not reset when exiting the safeguards logic test. With the relay not reset, and safeguards logic not in test, a spurious SI actuation occurred. The defective relay was replaced and tested to verify proper operation prior to Unit 2 reactor startup.</p>																							

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Prairie Island Nuclear Generating Plant Unit 2	05000306	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 4
		07	-- 01 --	1	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

The root cause evaluation (RCE) of this event determined that the equipment root cause was due to high contact resistance on the contact of the safety injection relay which did not allow enough current to reach the reset coil of the relay and the relay did not reset. This caused a safety injection actuation and reactor trip when the system was taken out of test. The RCE further determined that the organizational root cause was due to lack of developing and implementing a preventive maintenance strategy for the MG-6 style relays in the RPS. Historically Prairie Island had not experienced failure of these relays with resulting adverse consequences and had not applied the resources necessary to develop and implement a preventive maintenance strategy.

**EVENT DESCRIPTION**

On April 5, 2007, Prairie Island Nuclear Generating Plant (PINGP) Unit 2 was operating at 100% power. At approximately 0908 CDT, during surveillance testing of Unit 2 Train A safeguards logic at power, a spurious Train A Safety Injection<sup>1</sup> (SI) actuation occurred resulting in Reactor Protection System<sup>2</sup> (RPS) actuation. Train A SI was in "Test" at the time and should not have caused the RPS trip. At approximately 0913 the operating crew manually actuated Train B SI as required by emergency operating procedures. All automatic actions for a reactor trip and safety injection occurred as required. Reactor Coolant System<sup>3</sup> (RCS) pressure momentarily decreased below the shutoff head of the high head Emergency Core Cooling System (ECCS) pumps during the transient, resulting in ECCS discharge to the RCS. At approximately 0920 safety injection was terminated per emergency operating procedures. All systems operated as expected and operator response and recovery actions were as expected.

**EVENT ANALYSIS**

The trip of the Unit 2 reactor and the actuation of the emergency core cooling system are required to be reported per 10 CFR 50.73(a)(2)(iv)(A).

**Impact on Safety System Functional Failure Performance Indicator**

This event did not result in a loss of the safety injection system since the Unit 2 Train B safety injection was manually actuated and performed as expected. Therefore, this event does not represent a loss of safety function. Consequently, this event is not reportable per 10CFR 50.73(a)(2)(v).

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<sup>1</sup> EISS System Code: BQ

<sup>2</sup> EISS System Code: JC

<sup>3</sup> EISS System Code: AB

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

## SAFETY SIGNIFICANCE

The plant was stabilized in Mode 3 after the trip and all systems performed as expected in response to the reactor trip. Therefore, this event did not affect the health and safety of the public.

## CAUSE

Initial investigation of the cause of the automatic reactor trip was determined to be a deficiency with the safety injection relay equipment. Instrument and Control technicians discovered a safety injection relay<sup>4</sup> with high contact resistance. The high resistance contact caused the relay to not reset when exiting the safeguards logic test. With the relay not reset, and safeguards logic not in test, a spurious SI actuation occurred. The defective relay was replaced and tested to verify proper operation prior to the Unit 2 reactor startup.

The root cause evaluation (RCE) of this event determined that the equipment root cause was due to high contact resistance on the contact of the safety injection relay which did not allow enough current to reach the reset coil of the relay and the relay did not reset. This caused a safety injection actuation and reactor trip when the system was taken out of test. The RCE further determined that the organizational root cause was due to lack of developing and implementing a preventive maintenance strategy for the MG-6 style relays in the RPS. Historically Prairie Island had not experienced failure of these relays with resulting adverse consequences and had not applied resources necessary to develop and implement a preventive maintenance strategy.

## CORRECTIVE ACTION

### Immediate:

1. The defective relay was replaced and tested.

### Subsequent:

2. Safeguards logic test procedures have been revised to preclude a similar event.

### Planned:

3. Replace the remaining MG-6 style relays in the safeguards racks during the next refueling outage on each unit.
4. Complete development and implementation of a preventive maintenance strategy for the MG-6 style relays in the safeguards racks.
5. Complete development and implementation of a preventive maintenance strategy for all plant equipment classified as critical.

<sup>4</sup> EIS Component Code: RLY

# **LICENSEE EVENT REPORT (LER)** **TEXT CONTINUATION**

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## PREVIOUS SIMILAR EVENTS

Both Unit 1 and Unit 2 have experienced unplanned reactor trips in the past. The only other unplanned reactor trip in the last three years occurred in 2006. The 2006 reactor trip was not caused by the safety injection system. There were no other reportable events in the past three years that were related to relay failures or inadvertent SI actuation.